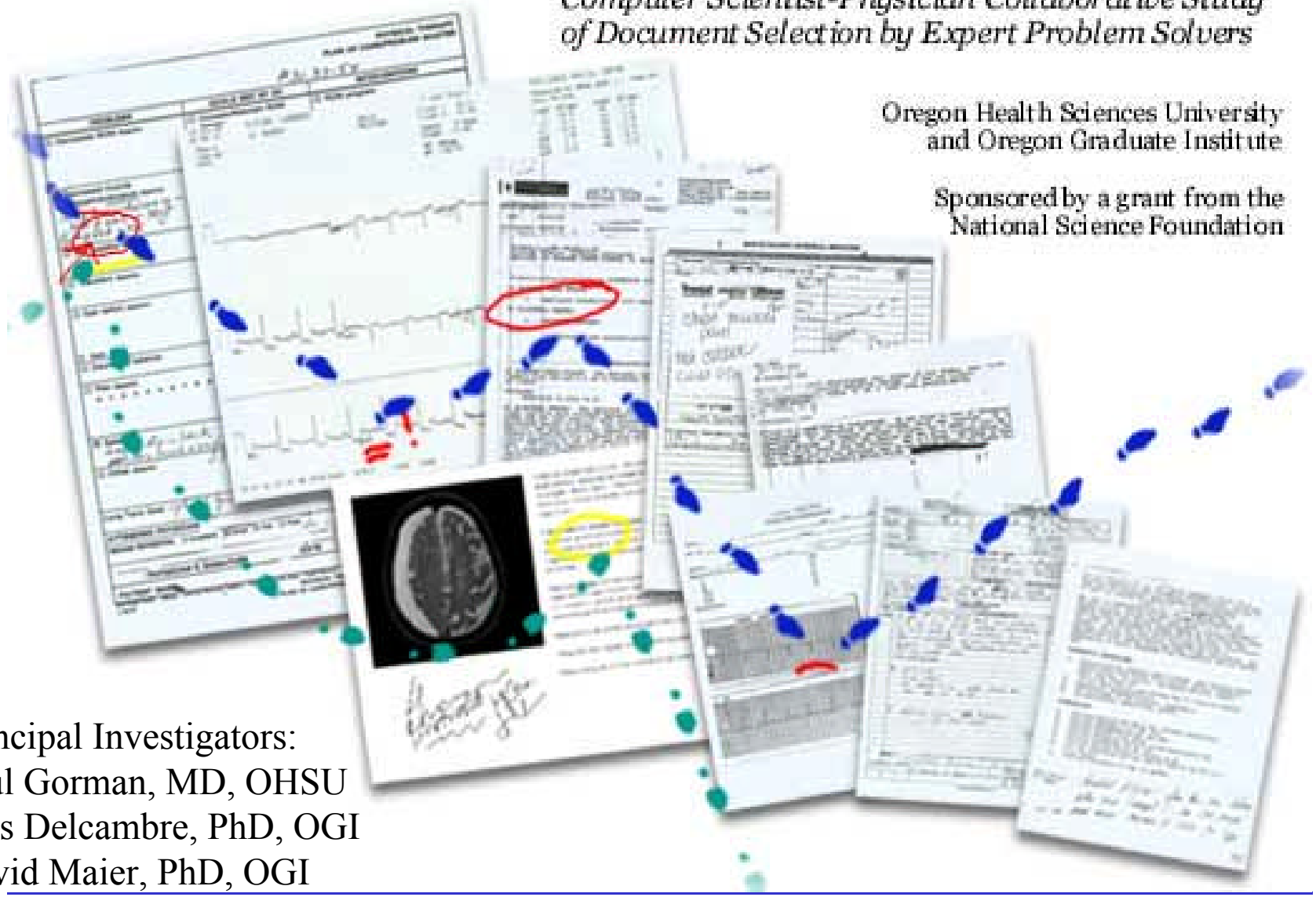
Tracking Footprints through a Medical Information Space

Computer Scientist-Physician Collaborative Study of Document Selection by Expert Problem Solvers

Oregon Health Sciences University
and Oregon Graduate Institute

Sponsored by a grant from the
National Science Foundation



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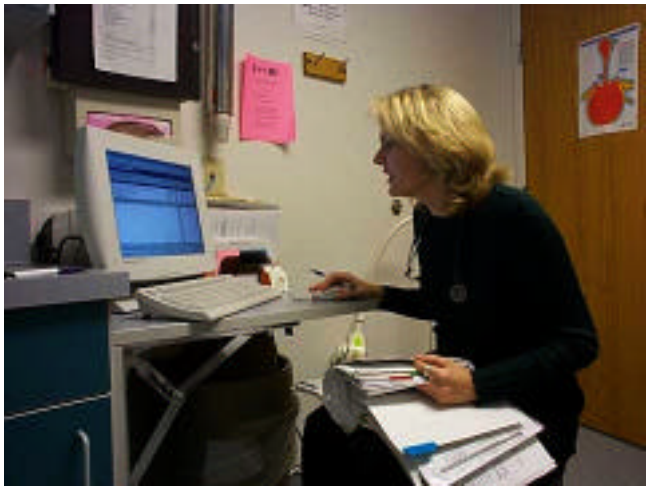
Expert Information Seeking in Medicine

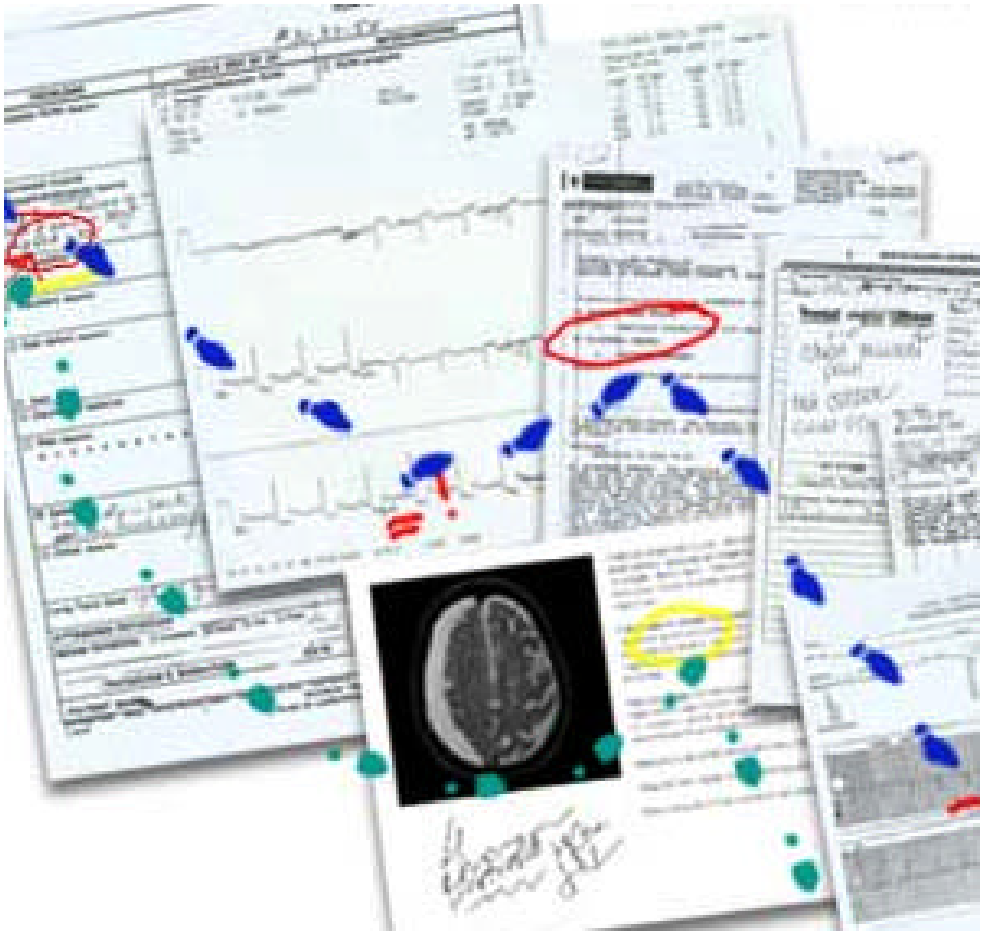


Finding Patient Information

Choosing Medical Knowledge

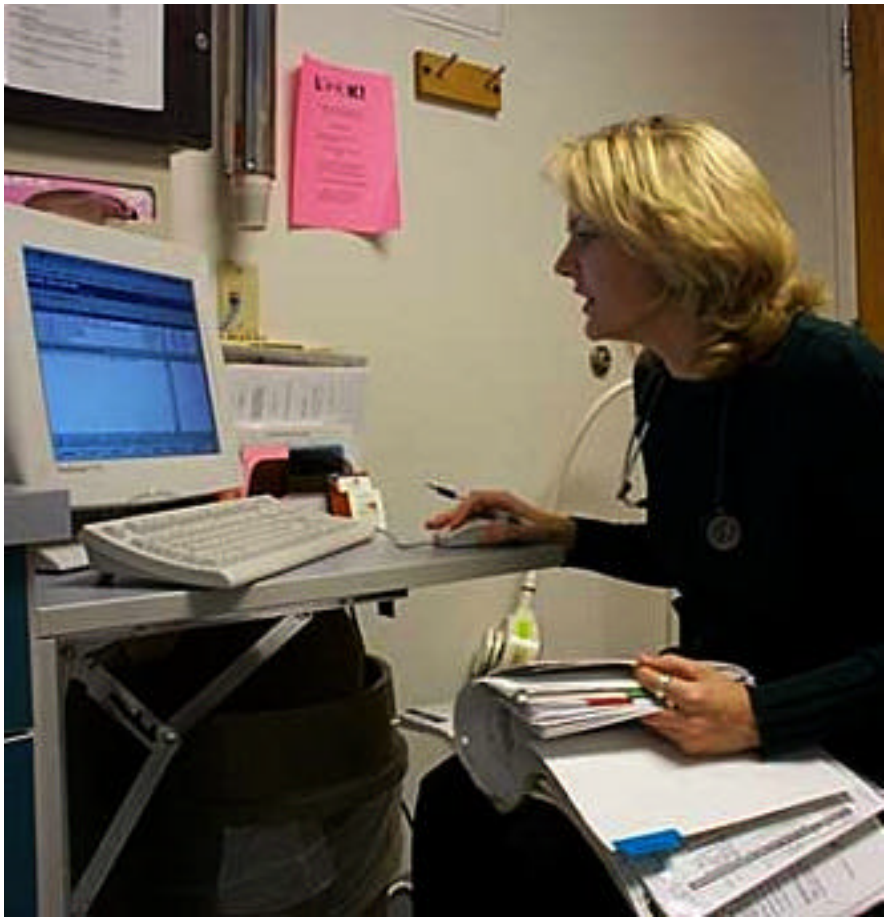
Journal Peer Review

The Information Space



- Large and Growing
- Diverse
- Many users and uses
- Distributed
- Complex
- Poorly organized

Expert Information Seeking



- Expert focused on patient care problem
- Uses multiple sources
- Attention is the limiting resource
- Selects small subset
  - Ignores vast majority
  - Uses content-free cues
- Organizes subset
  - as a “bundle”
  - bundles “in the wild”

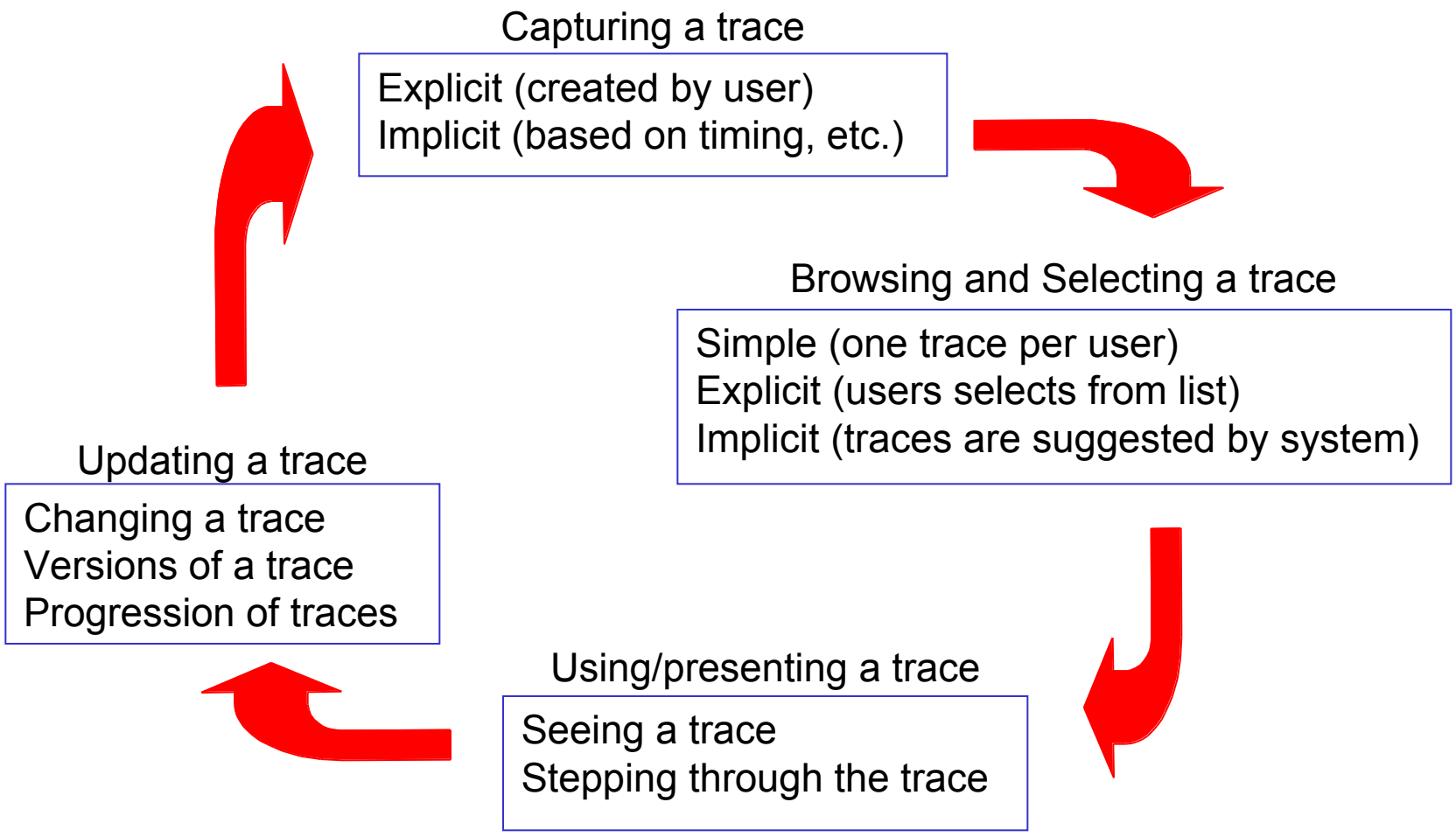
Research Questions

- How do experts choose which items to examine and which to ignore?
- Is there value in the information selections? Can a bundle be used by the same expert? A collaborating expert?
- Can we capture and leverage bundles effectively?

Computer Science Research

- Should we represent the bundle as a set? Or as a list?
- What are the useful levels of granularity of bundle elements?
- How can we build generic technology for superimposed information?

How Complex is the Bundle Technology?



Technical Advisory Board

- Sara Bly, PhD, user-centered design
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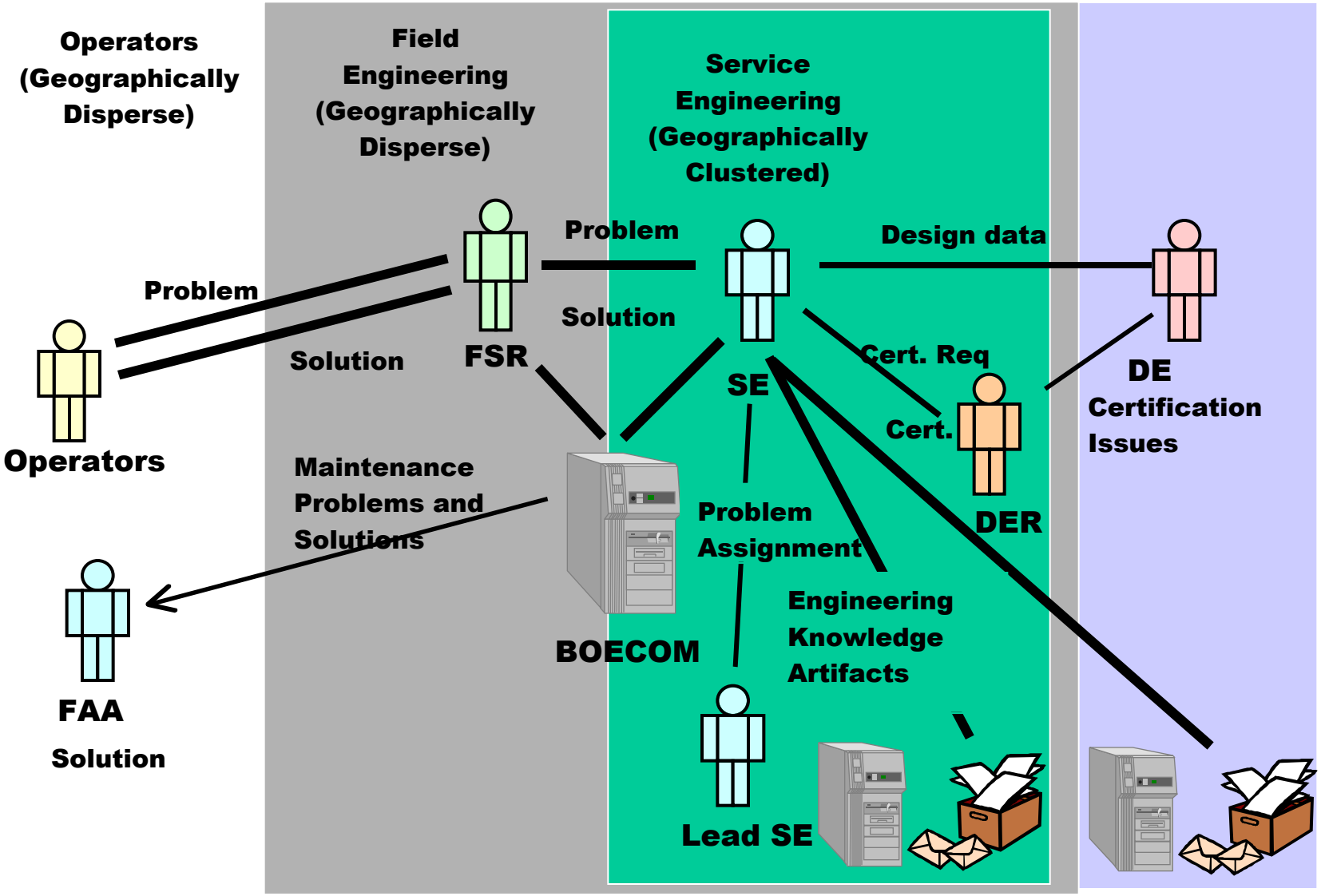
Boeing Service Engineering



(Courtesy of Rob Jasper, Mathematics and Computing Technology, The Boeing Company)

A Non-Medical Analog: Service Engineering (Help Desk)

- Airframes ≈ Patients
  - no two exactly the same
  - individual history important: initial configuration, repair, modification, maintenance
- Service Engineers ≈ Medical Specialists

  Need to select relevant subset of information from huge data space: design docs, maintenance records, engineering bulletins, minimum equipment lists

Currently track all questions and responses …

… *but don't capture which information was used to answer a particular question*